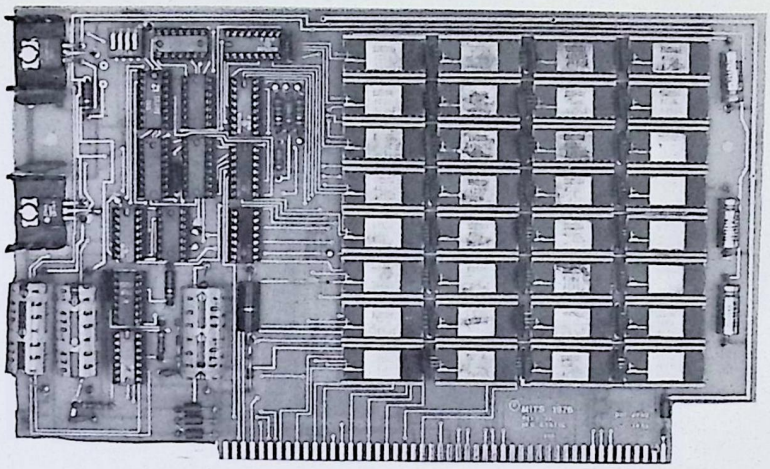
# 16K Static Memory Card (680b-BSM)

**The 680b-BSM 16K memory card consists of four 4096 x 8 bit static memory arrays, an Address Select circuit, a Read/ Write circuit, and three voltage regulators.**



## Hardware

A DIP switch is used for address selection (no address jumpers).

Test points have been installed at important signal outputs for ease of checkout and troubleshooting.

Ferrite beads are used on all common supply lines for noise isolation.

Epoxy solder masks cover areas not to be soldered.

Sockets are provided for all ICs.

Power: + 16V (130 milliamps, maximum)
− 16V (110 milliamps, maximum)
+ 9V (150 milliamps, maximum)

## Capabilities

Power consumption of 5 watts or 38 microwatts per bit. This allows operation of two 16K cards without adding a second power transformer.

RAM Access Time: 215 ns., max.

RAM Cycle Time : 400 ns., min.
Up to three 680b-BSM 16K memory cards may be used with the Altair 680b.

## Operation

The 680b-BSM memory card operates by retaining data in its memory cells, each cell having a unique location, or address. To place information in a memory cell, the CPU (Motorola 6800) performs a write function, usually caused by a store instruction. Data may also be written into memory by halting the CPU (Halt switch), selecting the memory address (switches A0-A15), selecting the data to be deposited (switches D0-D7), and toggling the deposit switch.

To read data from memory, the CPU must perform a read data operation. This may be done several ways. First, during normal execution of a program, the CPU must fetch (read) instructions and data from memory. Also, the CPU may be instructed to transfer data from memory to some other location, thus requiring a read operation.

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